Figure 1: Method A:

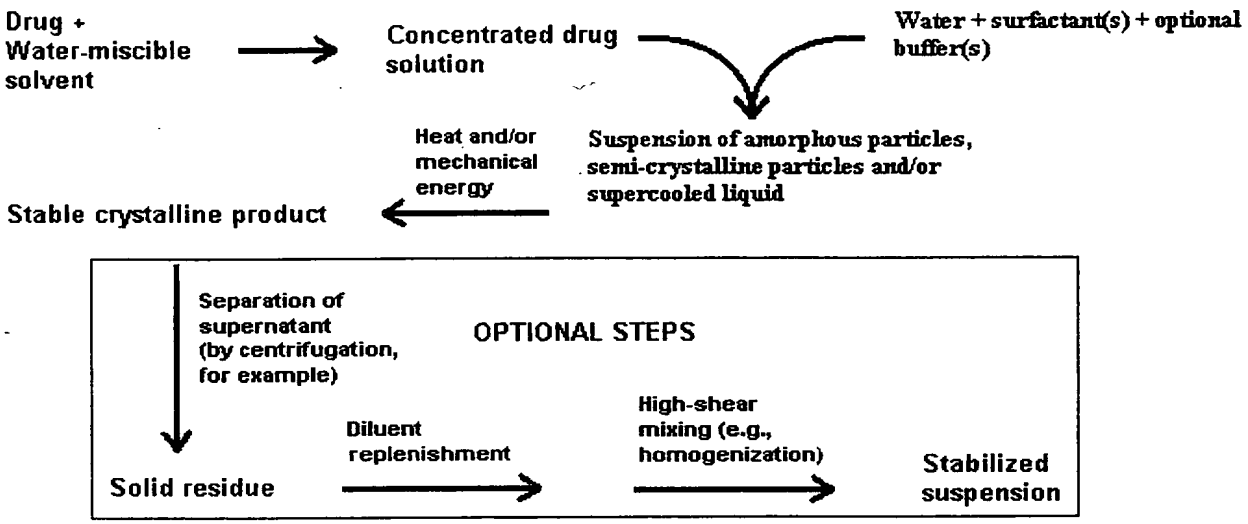


Figure 2: Method B:

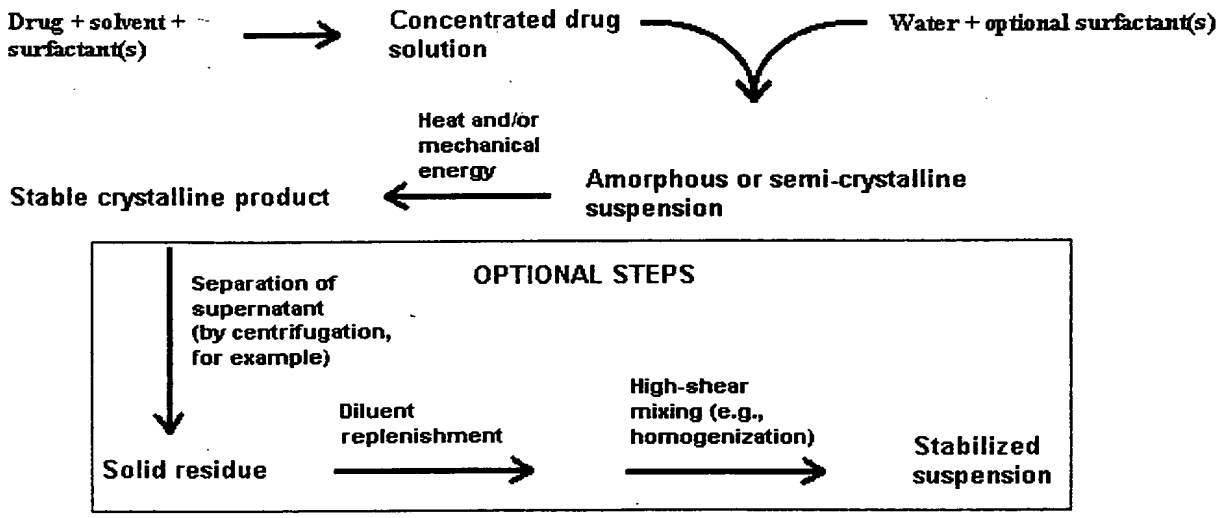


Figure 3: Amorphous particles prior to homogenization (Example 1).

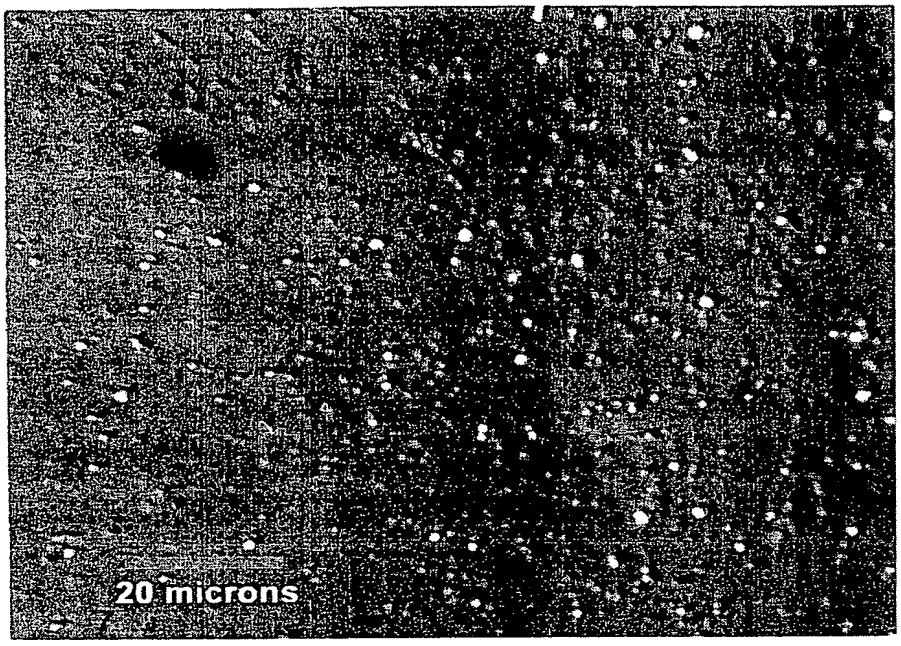


Figure 4: Particles after annealing by homogenization.

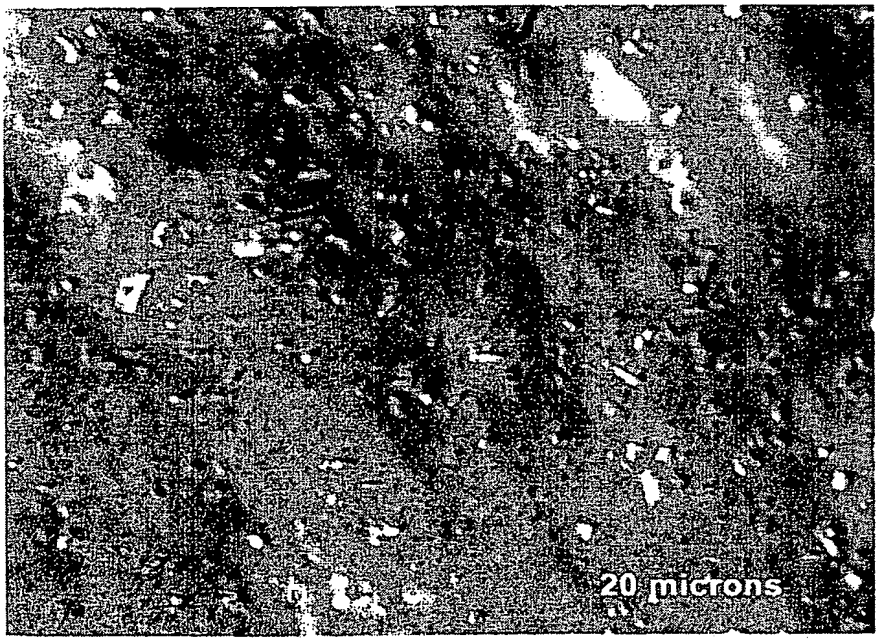


Figure 5: X-Ray diffractogram of microprecipitated itraconazole with polyethylene glycol-660 12-hydroxystearate before and after homogenization (Example 5).

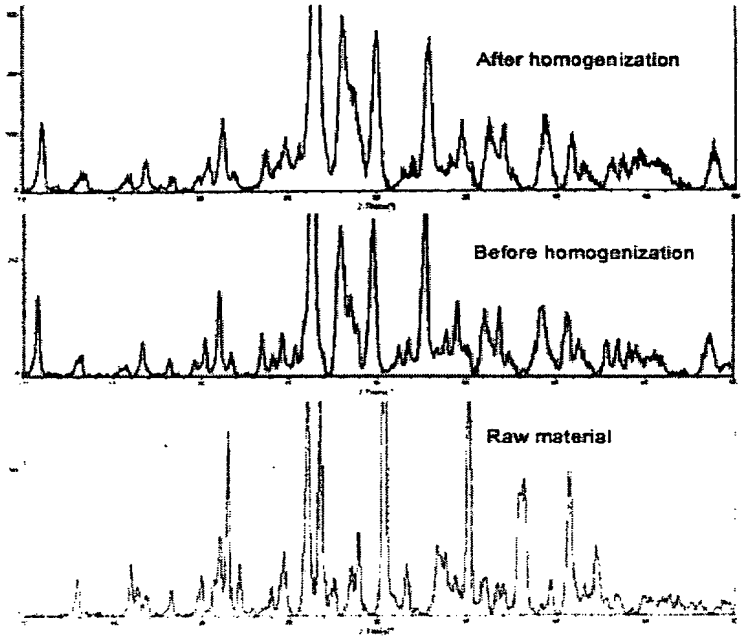


Figure 6: Carbamazepine crystals before homogenization (Example 6).

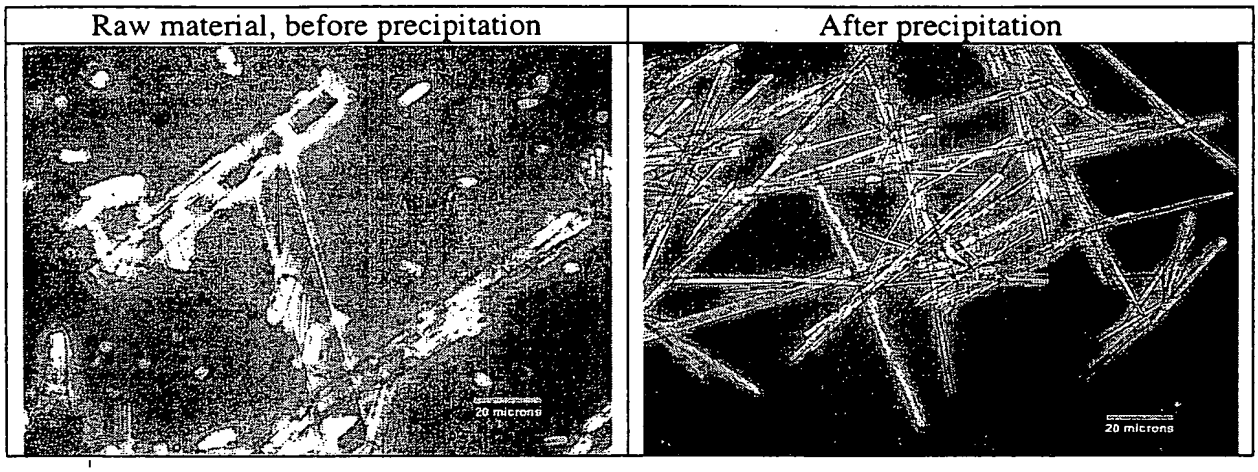
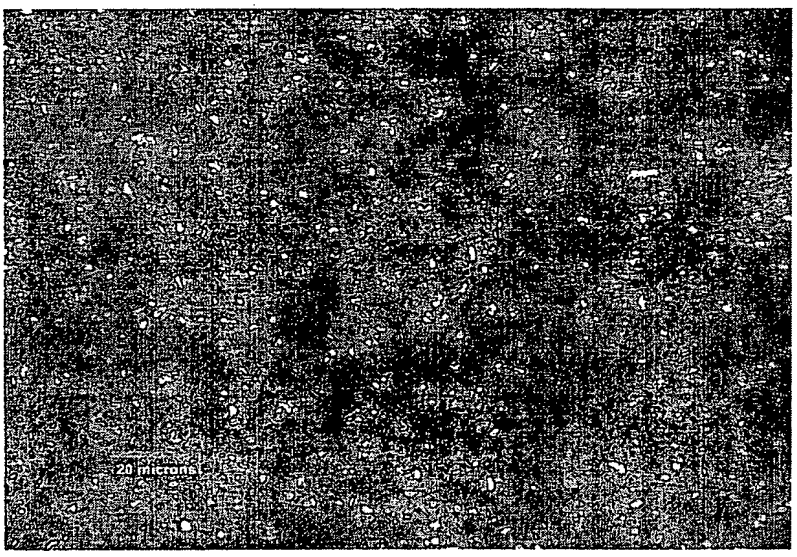


Figure 7: Carbamazepine microparticulate after homogenization (Avestin C-50)



(Example 6).

Figure 8: Diagram of Microprecipitation Process for Prednisolone (Examples 9-12)

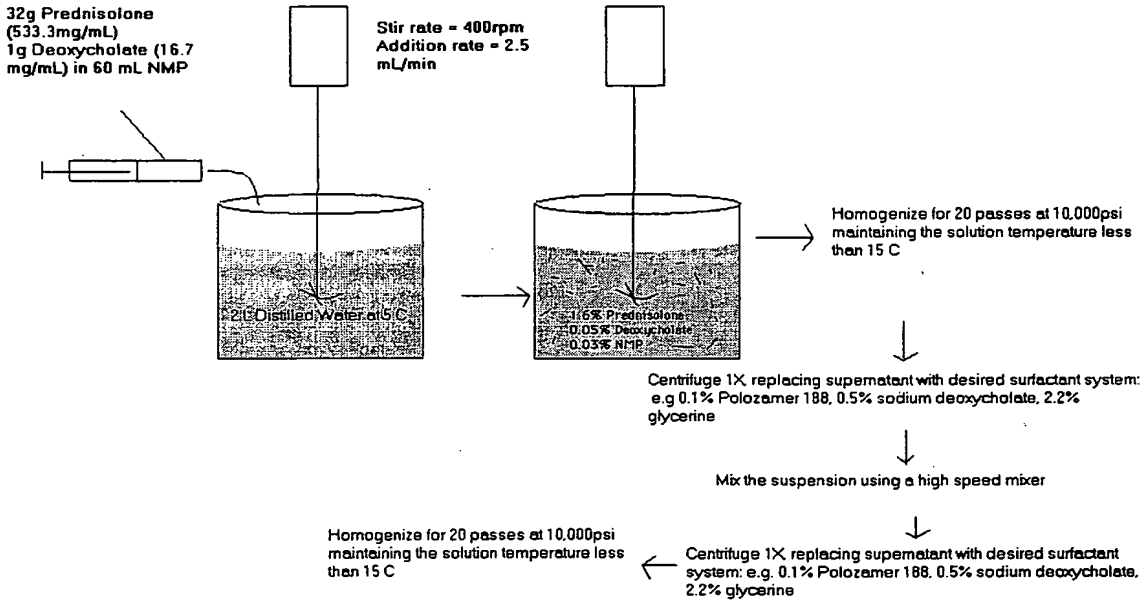


Figure 9: Photomicrograph of prednisolone suspension before homogenization (Hoffman Modulation Contrast, 1250X magnification)

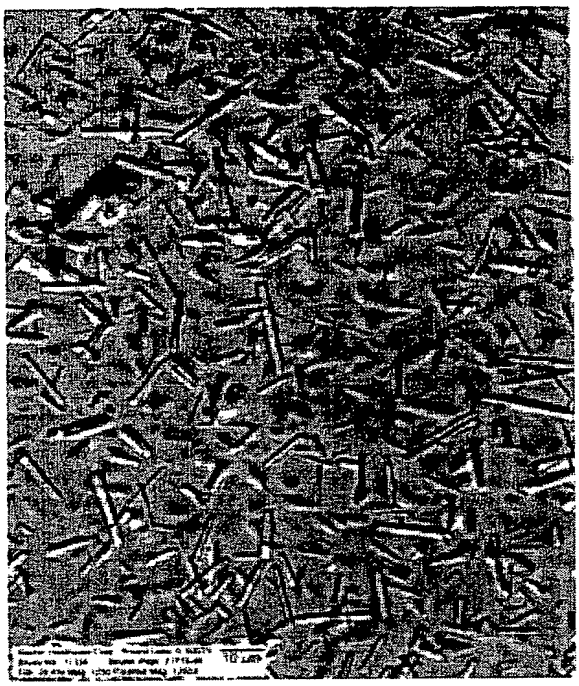


Figure 10: Photomicrograph of prednisolone suspension after homogenization (Hoffman Modulation Contrast, 1250X magnification).

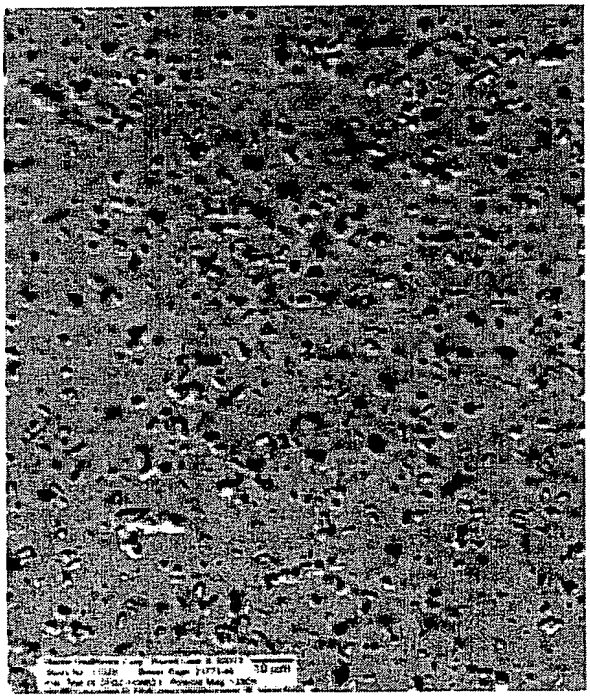
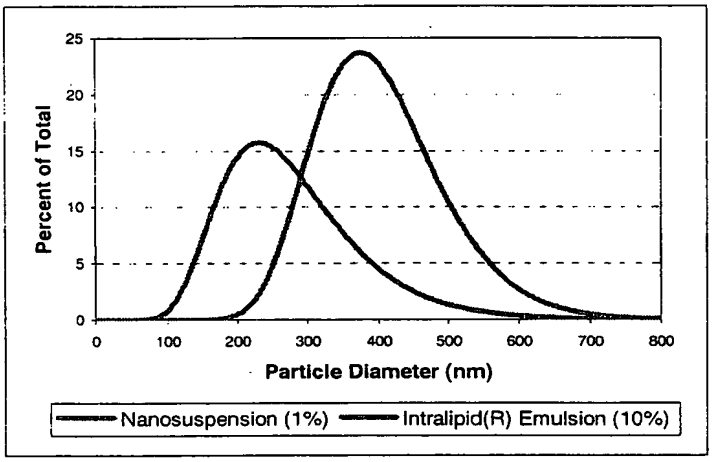


Figure 11: Comparison of size distributions of nanosuspensions (this invention) and commercial fat emulsion. (Example 13)



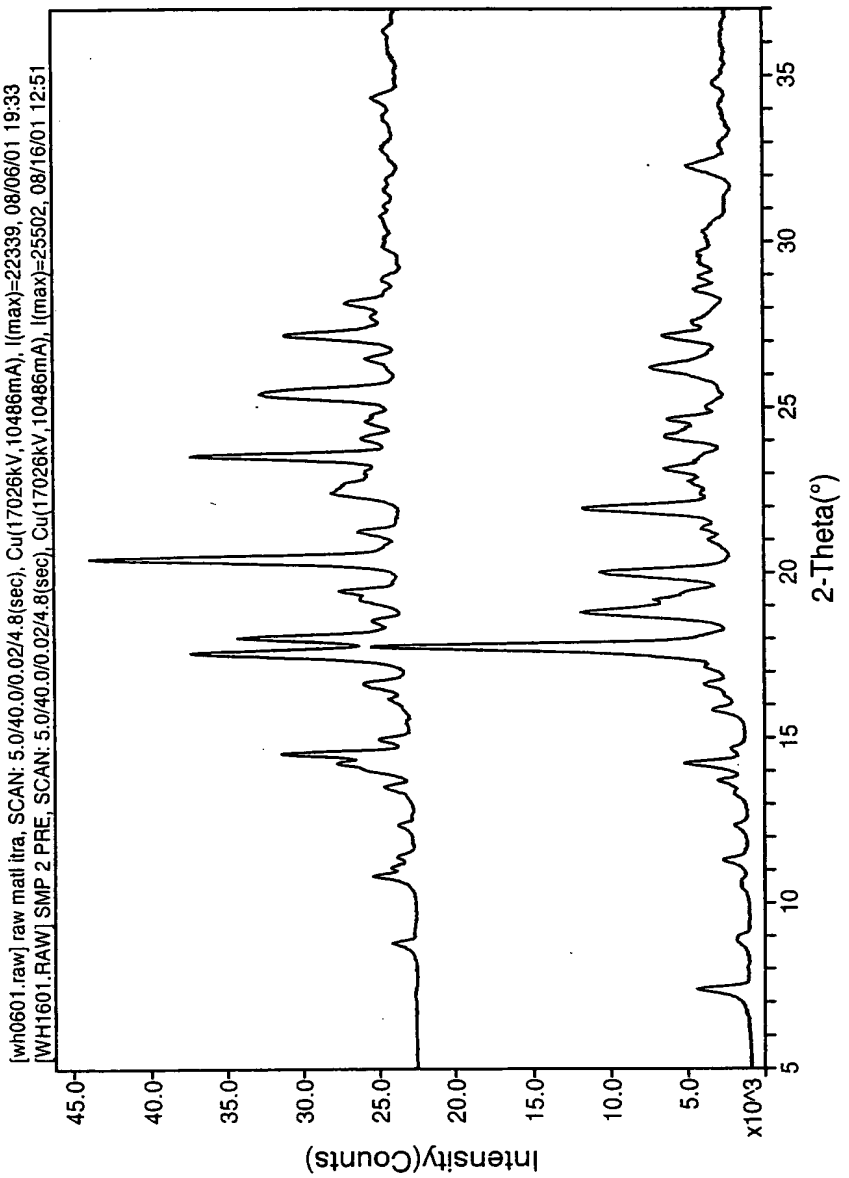


Figure 12: X-ray powder diffraction patterns for raw material itraconazole (top) and SMP-2-PRE (bottom). The raw material pattern has been shifted upward for clarity. (Example 16)

Figure 13a: DSC trace for raw material itraconazole (Example 16)

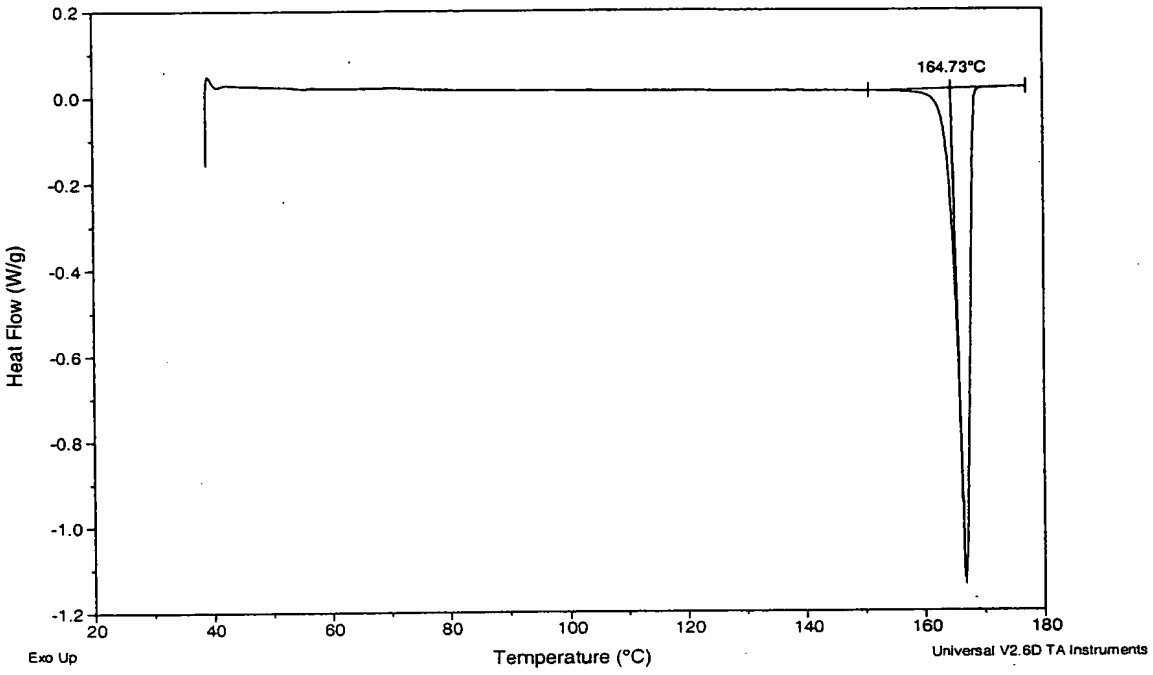


Figure 13b: DSC trace for SMP-2-PRE. (Example 16)

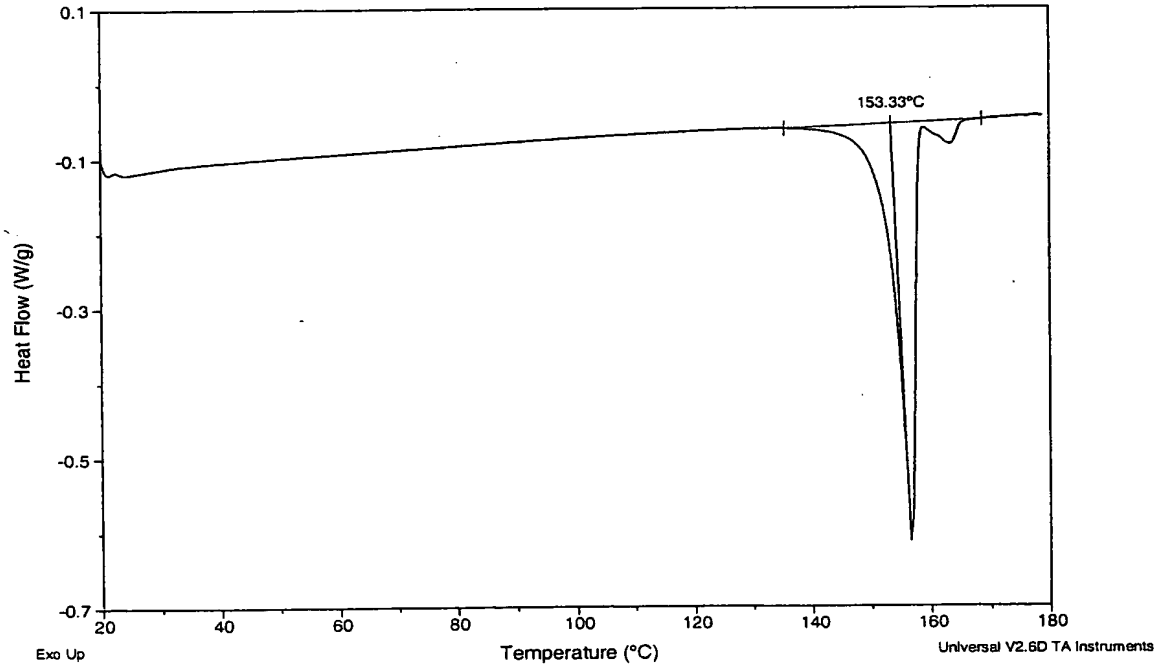


Figure 14: DSC trace for SMP-2-PRE showing the melt of the less stable polymorph upon heating to 160 °C, a recrystallization event upon cooling, and the subsequent melting of the more stable polymorph upon reheating to 180 °C. (Example 16)

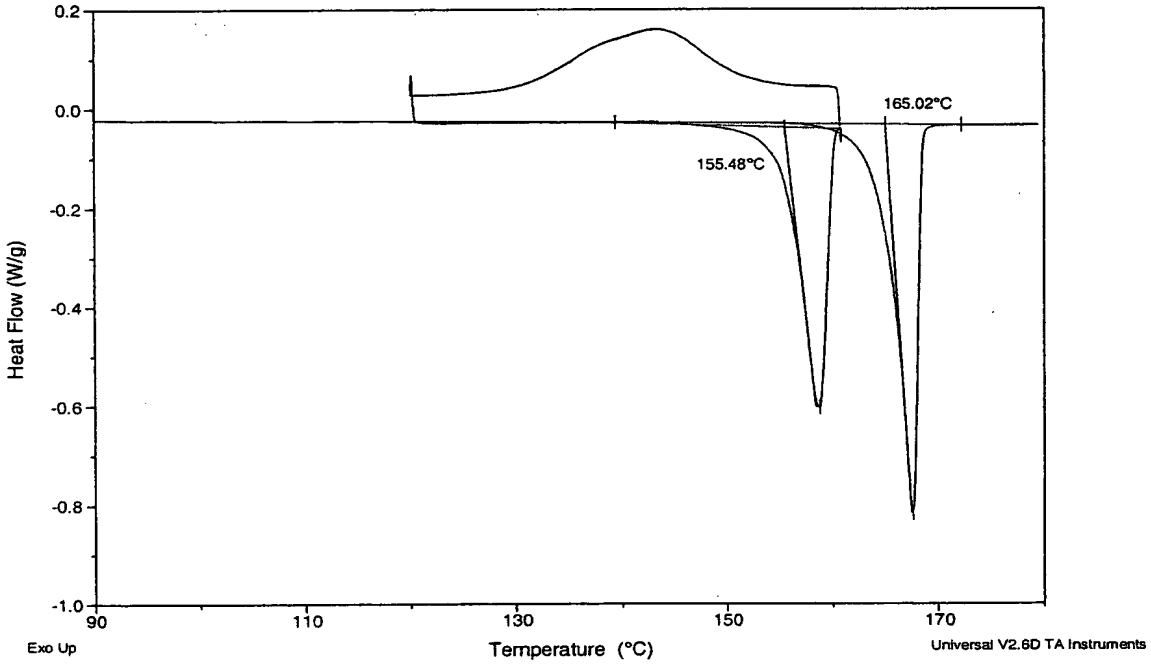


Figure 15: Comparison of SMP-2-PRE samples after homogenization. Solid line = sample seeded with raw material itraconazole. Dashed line = unseeded sample. The solid line has been shifted by 1 W/g for clarity (Example 16)

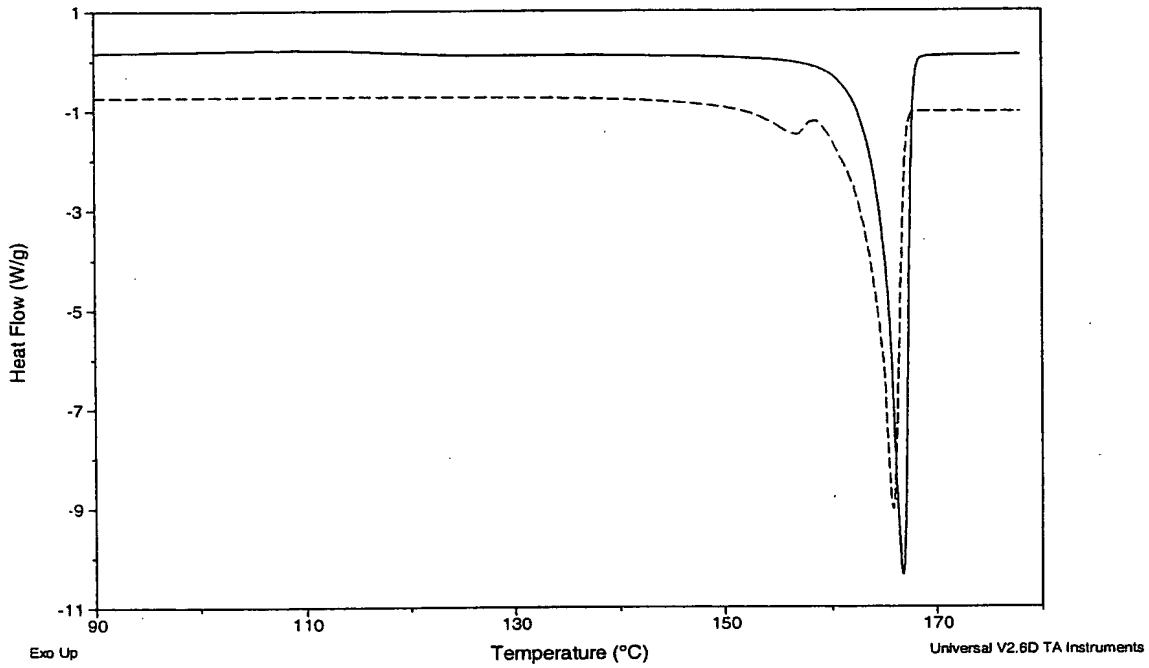


Figure 16: Effect of seeding during precipitation. Dashed line = unseeded sample, solid line = sample seeded with raw material itraconazole. The unseeded trace (dashed line) has been shifted upward by 1.5 W/g for clarity. (Example 17)

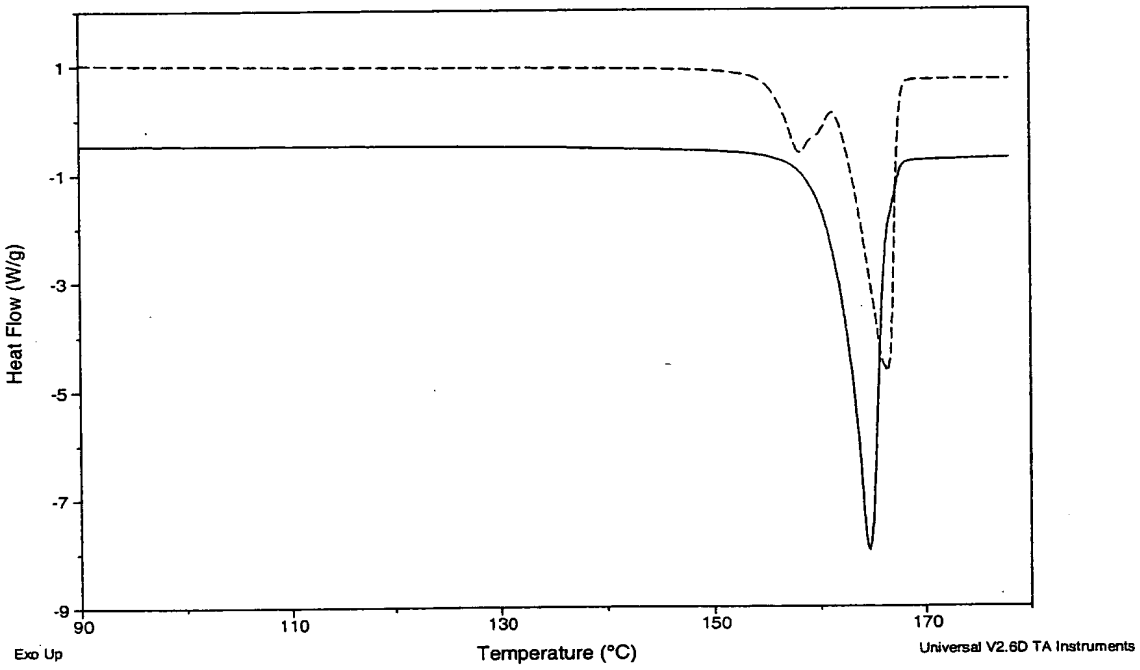
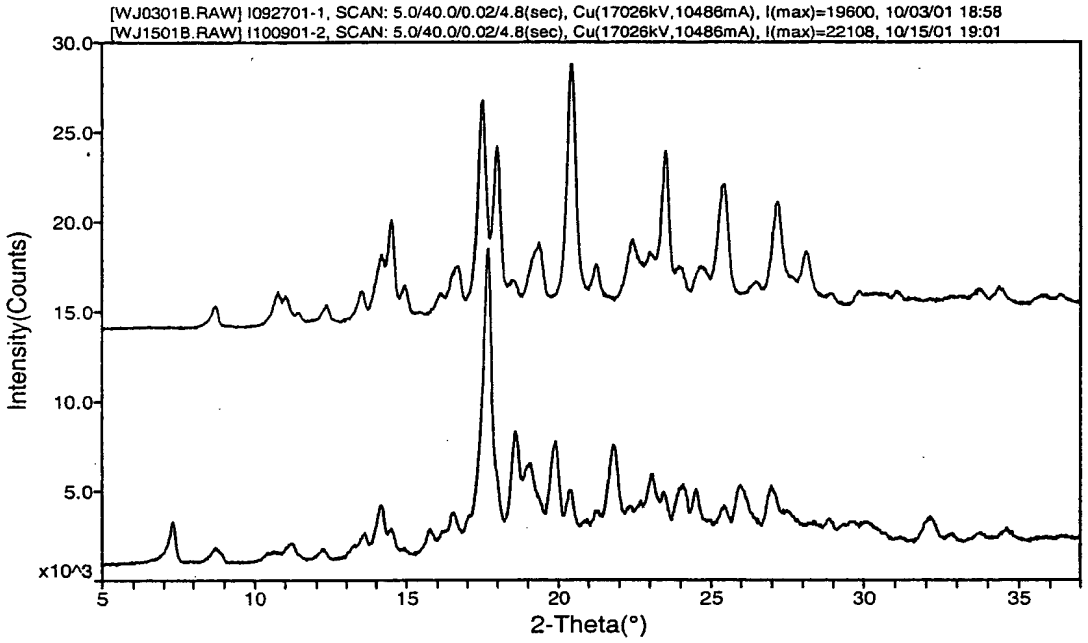


Figure 17: Effect of seeding the drug concentrate through aging. Top x-ray diffraction pattern is for crystals prepared from fresh drug concentrate, and is consistent with the stable polymorph (see Figure 12, top). Bottom pattern is for crystals prepared from aged (seeded) drug concentrate, and is consistent with the metastable polymorph (see Figure 12, bottom). The top pattern has been shifted upward for clarity. (Example 18)



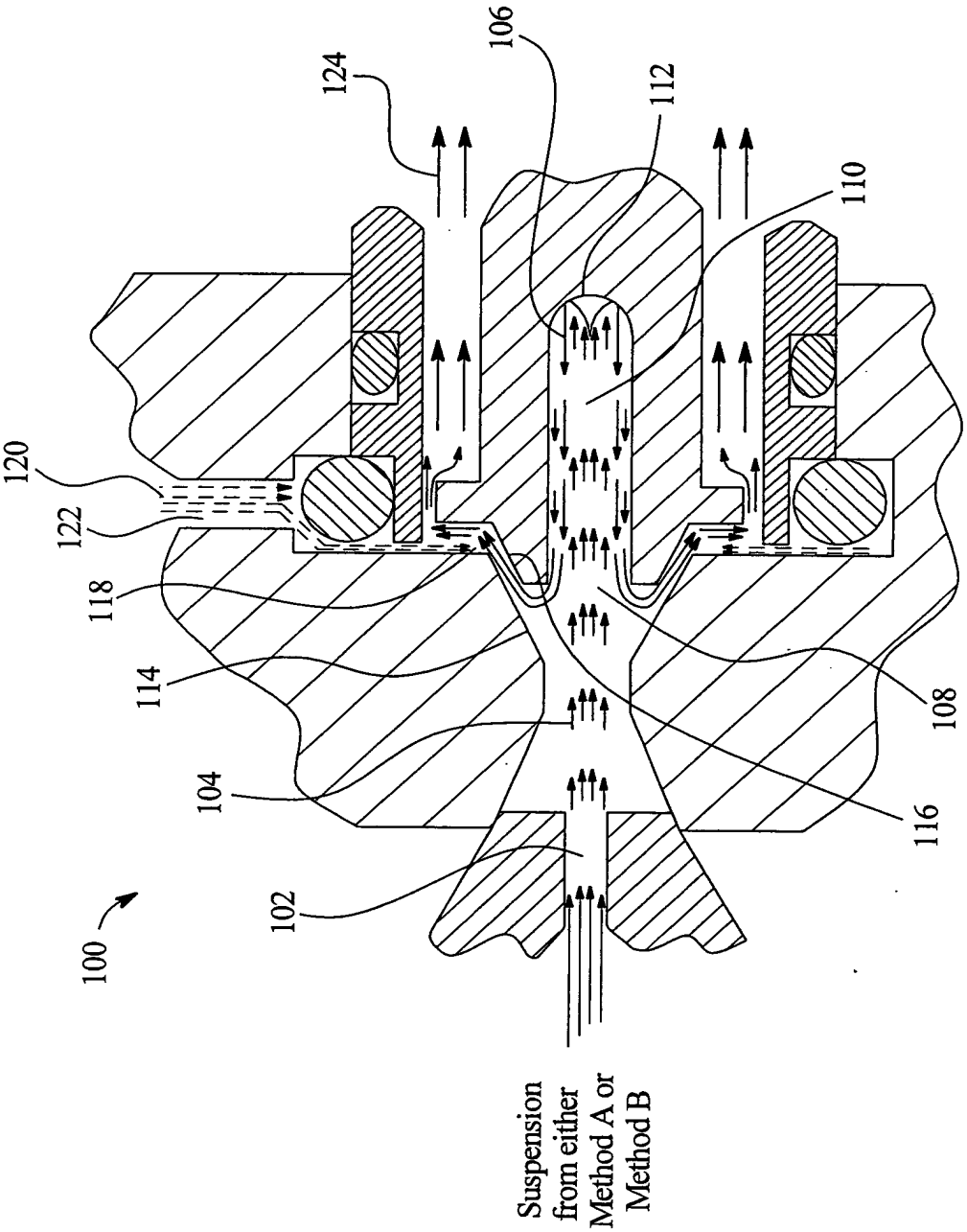

124
106
112
110
120
122
118
114
108
104
116
102
100
Suspension from either Method A or Method B

FIG. 18

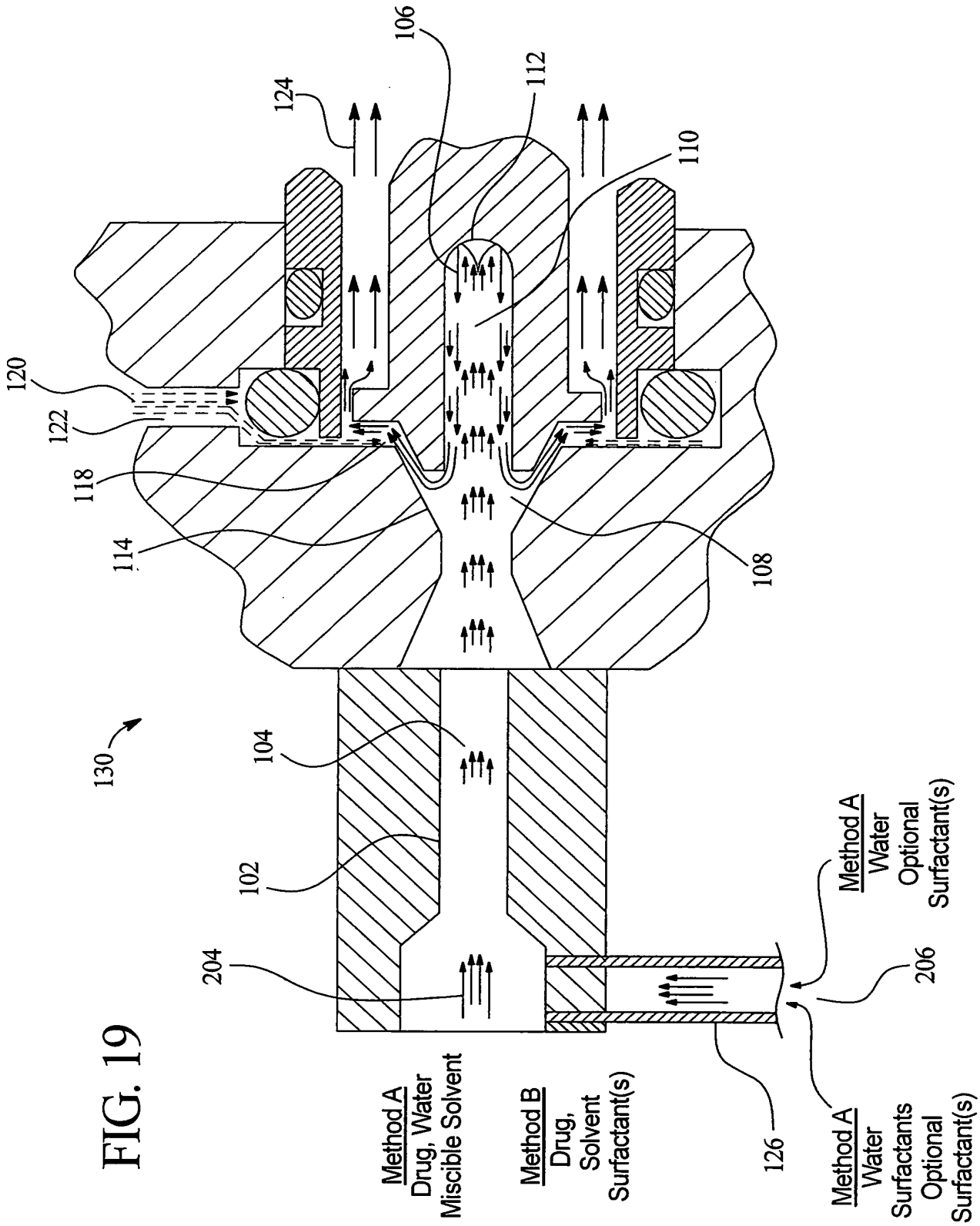

106
112
124
110
120
122
118
114
108
130
104
102
204
206
126
Method A
Water
Optional
Surfactant(s)
Method A
Drug, Water
Miscible Solvent
Method B
Drug,
Solvent
Surfactant(s)
Method A
Water
Surfactants
Optional
Surfactant(s)

FIG. 19

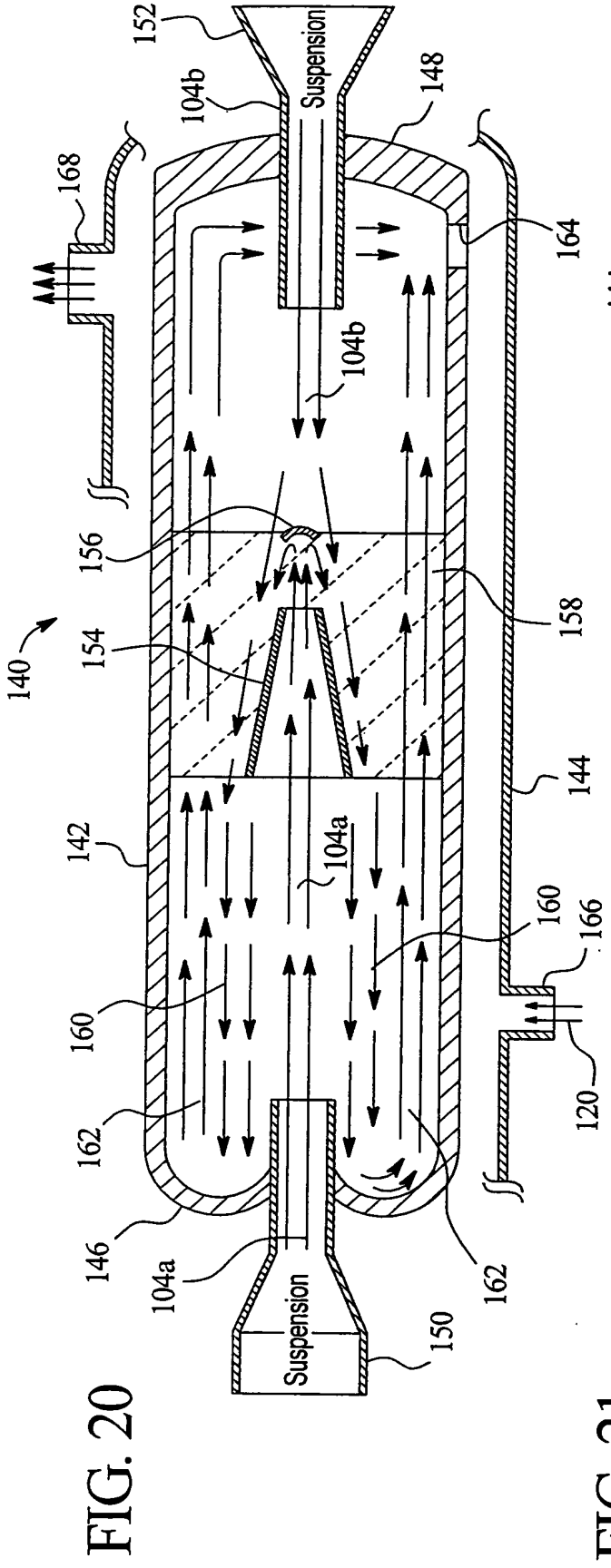

Suspension
Suspension
152
104b
148
168
164
104b
156
158
140
154
144
142
104a
160
166
160
120
162
146
104a
162
150

FIG. 20

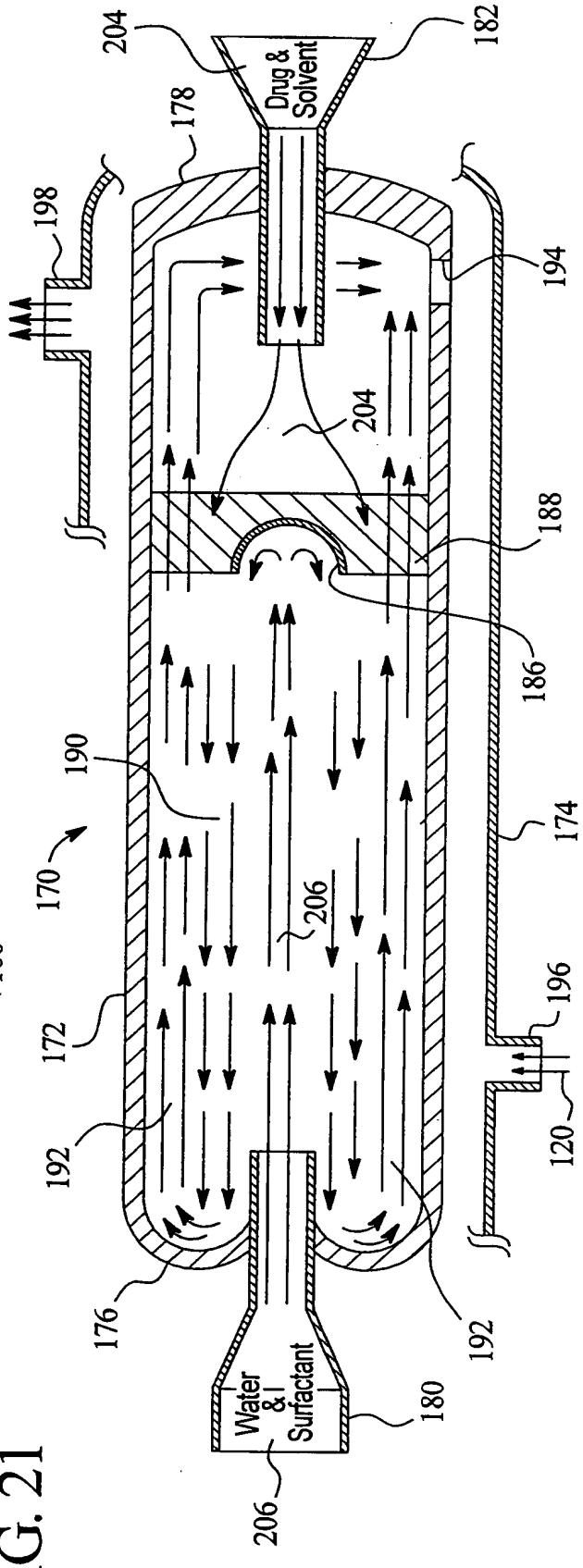

Drug & Solvent
204
182
178
198
194
204
188
186
190
174
170
206
172
196
192
120
176
192
Water & Surfactant
180
206

FIG. 21

FIG. 23

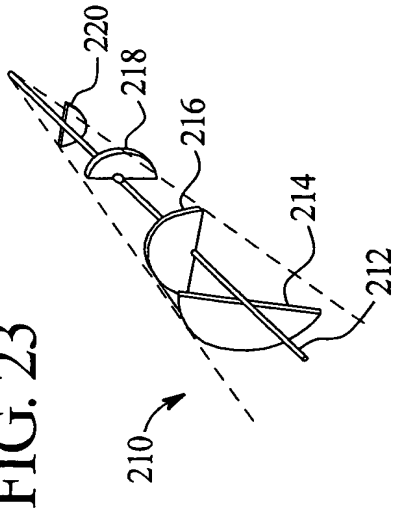


FIG. 22

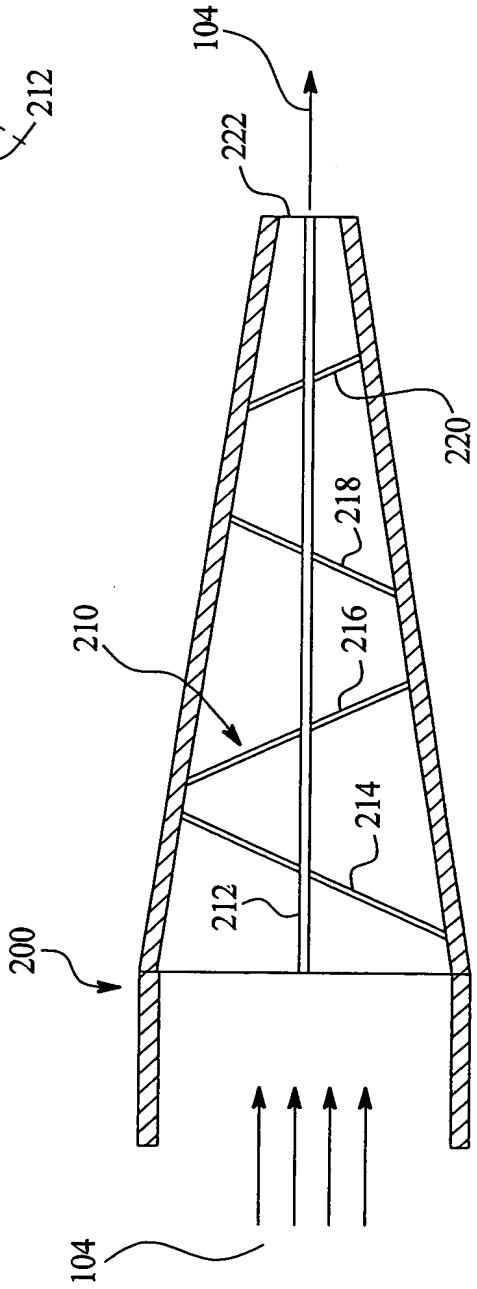


FIG. 24

Formulation	Itraconazole (%)	Pressure (psi)	Passes	Start Temp.(°C)	Final Temp.(°C)	Solutol HS15 (%)	Poloxamer 188 (%)	Phospholipids (%)	PH 7.5-8.5	Glycerin (%)	TRIS (mM)	Nitrogen Sparge
A	1	40,000	Till Particle Size Plateaus Off	<10	<70	0	0	1.2	8	2.2	5	Yes
B	1	40,000	Till Particle Size Plateaus Off	<10	<70	0	0.03	1.2	8	2.2	5	Yes
C	1	40,000	Till Particle Size Plateaus Off	<10	<70	0.75	0	0	8	2.2	5	Yes

FIG. 25